

barograph trace made at my residence at Castelwood, Ky., located about 3 miles southeast of the Louisville station, that is, about $7\frac{1}{2}$ miles southeast of the tornado belt (see fig. 1 and 2).

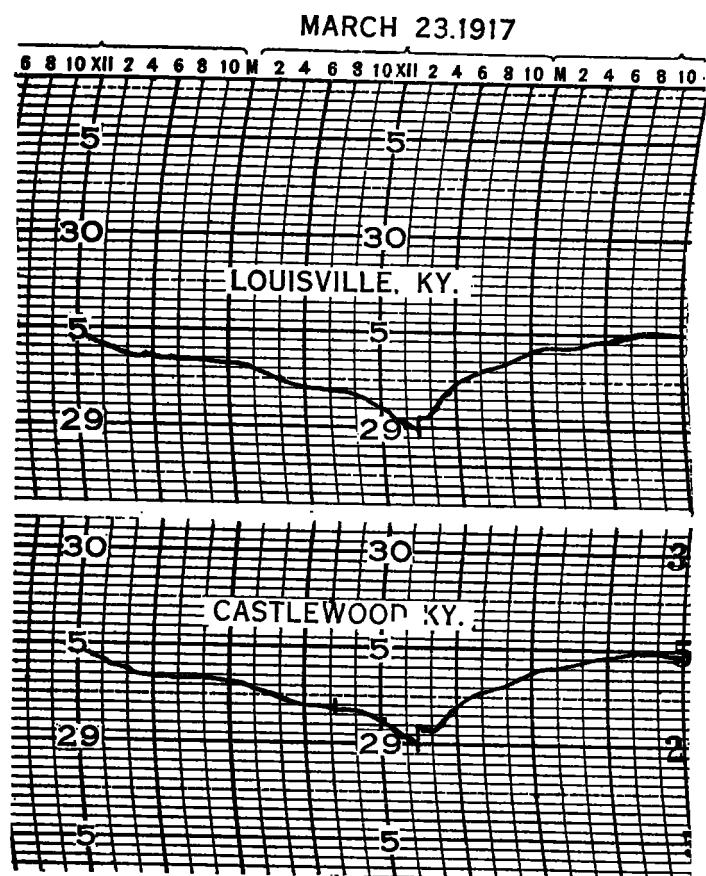


Fig. 2.—Barograms recorded by Richard barographs at the Louisville office and at Castlewood, Ky., accompanying the New Albany tornado (station pressures; 90th meridian time), showing effect of pressure changes.

Among the great mass of destruction, the following seems to call for special mention: The Olden Street School for colored children, in which 40 teachers and children were gathered, was entirely destroyed, all the inmates injured, 12 being killed.

Kahler's Wood Specialties Manufacturing plant was completely destroyed, 8 men were killed and of the other occupants all but two were seriously injured.

One entire family, consisting of five persons, perished; the father Edward Johns being decapitated and horribly mangled.

A painter, Clarence Moss, while working on a house was killed by flying timbers, his head being severed from his body.

Of another family of six, all but the father, who was away at the time, perished. The mother and two children were killed in the house when it was demolished, while two small children who were in the front yard when the storm struck were caught up and carried away, their bodies being found two squares from the ruins of their home. The body of another young girl was found about a quarter of a mile from her home where she was known to have been when the storm struck. Her home was absolutely wiped out, not a piece being left standing. Charles Newkirk had a fence paling driven through his body, but lived for a few days. Mrs. Alice Hartley had her eyes put out by flying glass. The money damage is estimated between one and one and a half million dollars.

FISH KILLED BY THE COLD WAVE OF FEBRUARY 2-4, 1917, IN FLORIDA.

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An interesting occasional and but little known effect of cold waves over shallow waters of the Tropics and sub-Tropics is the killing of thousands of fish. Many species are so chilled as to be rendered helpless and are either killed directly by drowning or are washed ashore in a comatose state. This phenomenon is locally known as "freezing" of fish, though the temperature of the water may be several degrees above its freezing point.

This killing of fish by chilling is not confined entirely to tropical and subtropical waters, for great quantities are sometimes killed along the Atlantic coast as far north as New England during very severe cold waves, and it is an occasional fall and winter accompaniment of the Texas norther.¹ Somewhat similar effects have been reported from South Africa.² There, however, the cooling of the water seems to be due to variations in position of cold ocean currents rather than to cold air temperatures.

This "freezing" phenomenon was observed in Florida during the cold wave of February 2-4, 1917, along most of the coast line, both Atlantic and Gulf, though in the northernmost regions affected mortality was confined chiefly to shell fish and the smaller free swimming varieties.

The cooling of the water is directly due to contact with cold air,³ hence the great expanses of shallow water surrounding the Florida Keys and in the numerous shallow bays, but little affected by tides, are excellent exposures for rapid cooling. The temperature fell decidedly during the night of February 2-3, and air temperatures at freezing were reached over most of the State except the Florida Keys, an air minimum of 43.5° being reached at Key West.

The greatest "freeze" of fish on record in Florida is that of January 12, 1886, when the lowest temperature ever observed in Key West, 41°, was reached. The countless thousands of fish washed up during this "freeze" were used as fertilizer at many places. Residents near the shore went fishing by strolling along the beach with a basket under the arm and picked up selected varieties of "frozen" fish as fast as they were washed ashore.

As a rule, gregarious species were not affected as much as those of solitary habits, for the former have the tendency to leave the cold coastal waters and go out to sea. Along the east coast many varieties availed themselves of the proximity of the Gulf Stream and went out to it, where they remained until the return of normal temperatures.

In the neighborhood of Cedar Keys, as far north as marked mortality occurred, the majority of the species observed to have been killed were small fish, 2 to 3 inches in length, crabs, small shrimp, sand worms, etc. In the vicinity of Tampa some mullet, grunts, and jackfish were killed. Farther south more and larger varieties were affected. In the neighborhood of Key West large barracuda and even sharks were thrown out upon the beaches; conchs and shellfish succumbed by the thousand; and one octopus of moderate size was noticed apparently dead. A great many fish were numbed by the cold, and, if they were not washed ashore, came out all right as soon as the

¹ Report of U. S. Fish Commission, 1886, pp. 68-72.

² Union of South Africa, Province of the Cape of Good Hope. Marine Biological Report No. 2, 1914, pp. 18-34.

³ The chilling of the water must also be due, in part at least, to conduction to the chilled ground but chiefly to direct radiation into the cold, dry, transparent air brought down to these warm latitudes by the unusual weather conditions.—C. A., Jr.

weather warmed up. Several communities employed laborers to bury the tons of dead fish in order to minimize the stench that would arise from their decay.

The cold wave was not without some economic benefits. According to the findings of Mr. Ernest Danglede, of the

U. S. Bureau of Fisheries, who was working in the vicinity of Cedar Keys and Port Inglis at the time of the cold spell, a parasite that had been doing much damage to oysters was almost completely eradicated by the cold, while the oysters themselves were harmed but little.